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1. ☒ Patent

\*Document No. 59088065

\*Country Code JP

\*Publication Date 5/21/84

\*Language Japanese

No. of Pages \_\_\_\_\_ (filled by STIC)

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Translations

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Date assigned: 2-13-03

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### Translation

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PTO 2003-1882

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☐ 1. 2/34/1 (Item 1 from file: 351)

004016899

WPI ACC No: 1984-162441/ 198426

Foodstuff prepn. from bone and marrow - by mixing crushed ingredients with seasoning, pulverising, immersing in water, adding further seasoning etc.

Patent Assignee: SASAKI T (SASA-I)

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 59088065	A	19840521	JP 82196247	A	19821109	198426 B
JP 87006771	B	19870213	JP 82196247	A	19821109	198710

Priority Applications (No Type Date): JP 82196247 A 19821109

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 59088065	A		7		

Abstract (Basic): JP 59088065 A

Bone and marrow of fowl or fish are crushed to powder, mixed with seasoning agent homogeneously, pulverised into fine particle using pulverising machine at temp. at which the properties of bone and marrow are not changed or degraded, immersed in water, washed with water and dehydrated to remove blood and fat.

The prod. is again mixed with seasoning agent, and the resultant is adjusted to specified pH value with the use of organic acid, and formulated into paste like minced material, followed by freezing and further, if necessary, freeze-drying or drying under hot gas stream.

0/0

Derwent Class: D13

International Patent Class (Additional): A23L-001/31

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☐ 2.

2/34/2 (Item 2 from file: 347)

01376465 PREPARATION OF FOOD RAW MATERIAL COMPOSED OF EDIBLE BONE AND MARROW

Pub. No.: 59-088065 A]

Published: May 21, 1984 (19840521)

Inventor: SASAKI TAKEJI

Applicant: SASAKI TAKEJI [000000] (An Individual), JP (Japan)

Application No.: 57-196247 [JP 82196247]

Filed: November 09, 1982 (19821109)

International Class: [ 3 ] A23L-001/315; A23L-001/325

JAPIO Class: 11.4 (AGRICULTURE -- Food Products)

JAPIO Keyword: R059 (MACHINERY -- Freeze Drying)

Journal: Section: C, Section No. 241, Vol. 08, No. 193, Pg. 151, September 05, 1984 (19840905)

#### ABSTRACT

**PURPOSE:** To obtain the titled food raw material rich in nutrient components, by adding a specific additive in the rough crushing process of edible bone and marrow, pulverizing the bone, etc. to ultra-fine powder, removing the blood and fat therefrom, and adding an additive to adjust the pH.

**CONSTITUTION:** The edible bone and marrow of cattle, poultry or fish are crushed to a proper size, immersed in a solution of sodium hypochlorite to effect the disinfection and cleaning, roughly crushed to 1-5mm diameter, added with an alkaline aqueous solution of soybean lecithin, stirred homogeneously, and pulverized with a precise grinder to ultra-fine powder of  $\leq 5\mu$  diameter under the temperature condition to prevent the thermal denaturation of the proteins which are the main components of the product. The powder is washed with water chilled at  $\leq 15^\circ\text{C}$ , dehydrated to a proper water-content, subjected to the removal of blood and fat, mixed with an aqueous solution of soybean lecithin, and adjusted to 5.3-6pH with an organic acid. The obtained pasty mince having low fat content and free from the dripping tendency is freeze-dried or dried with hot air to obtain the powdery material.

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☐ 3.

2/34/3 (Item 3 from file: 345)

4640540

Basic Patent (No,Kind,Date): JP 59088065 A2 840521

## PATENT FAMILY:

JAPAN (JP)

Patent (No,Kind,Date): JP 59088065 A2 840521

PREPARATION OF FOOD RAW MATERIAL COMPOSED OF EDIBLE BONE AND MARROW  
(English)

Patent Assignee: SASAKI TAKEJI

Author (Inventor): SASAKI TAKEJI

Priority (No,Kind,Date): JP 82196247 A 821109

Applic (No,Kind,Date): JP 82196247 A 821109

IPC: \* A23L-001/315; A23L-001/325

Derwent WPI Acc No: \* C 84-162441

JAPIO Reference No: \* 080193C000151

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Patent (No,Kind,Date): JP 87006771 B4 870213

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IPC: \* A23L-001/312; A23L-001/325

Language of Document: Japanese

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Japanese Kokai Patent Publication S59-88065, published May 21, 1984; Application No. S57-196247, filed November 9, 1982; Inventor: Takeji SASAKI; Assignee: Takeji SASAKI

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## METHOD FOR MANUFACTURING A FOODSTUFF OF EDIBLE BONE AND MARROW

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### 2. Claim

With the present invention, with a process for coarsely grinding edible bone and marrow from birds, game, fish, and the like, a specially selected foodstuff additive is uniformly mixed; with this as the main component, it is finely pulverized by means of a precision grinder under temperature conditions not allowing for degeneration; next, due to a process whereby it is immersed in water of a suitably low temperature and and washed, and an appropriate water content is extracted and separated, blood and fat are removed, and after selected additives are again mixed, a low-fat minced product whose pH value is adjusted using organic acids is obtained and is frozen; freeze-drying or hot-air \* drying may be carried out as necessary to form a powder.

### 3. Detailed Explanation of the Invention

Previously, there has been a manufacturing method for a ground foodstuff with the body and neck of a broiler in Japanese Kokai Patent Publication S50-53061 [published in 1975]. Using the basic principles and indications of this method, a method for manufacturing a foodstuff comprised of edible bone and marrow of fowl other than chicken or fish is widely applied.

59°F  
More specifically, the edible bones and significant edible marrow of fowl such as ducks and turkeys, which are other than chickens; livestock such as cows, pigs, sheep, horses, rabbits, and the like; and fish [and fish-like animals] such as eels, salmon, trout, cod, whales, and the like, are ground to a suitable size using a shearing machine, and after soaking, disinfecting, and washing in a sodium hypochlorite (100 ppm or less) solution, with a rough grinding process where rough grinding from rough cutting is repeated several times, 1 – 5 mm of bone matter and the like is obtained. After a selected additive (A) is uniformly mixed at a temperature whereby the proteins and the like, which are the main components, are not degraded by heat, a fine powder of 5  $\mu$ m or less is obtained by means of a precision grinder. This is soaked, stirred, and washed in low-temperature water of 15°C or less. Blood and fat are removed by extracting and separating a suitable water content, malic acid, or a suitable quantity of a mixture thereof is added. With the objective of preventing the propagation of harmful bacteria and improving the preservation of the product quality, by adjusting the pH to 5.3 – 6, a non-dripping paste-like minced foodstuff. If this is to be preserved for a long period, it is frozen.

Additionally, this is a manufacturing method for an element whereby a powdered foodstuff can be freeze-dried or hot-air-dried.

With the selected additive (A), a phospholipid such as soy lecithin is dissolved together in an alkali aqueous solution with a pH of about 10. The characteristics of the emulsified product of easily dissolving and separating from oils and fats are used, and the removal of both fat and blood during washing is easily accomplished.

With the selected additive (B), an aqueous solution of soy lecithin is made uniform.

With the grinding process of fine particulates, which is the basic principle of both the original invention and the present invention, other additives may freely be jointly or singly used.

The results of the present invention and embodiments thereof are listed below.

Though unheeded as of the present time, it goes without saying that the edible bone and marrow are protein sources based on the manufacturing method of the present invention. They are also sources of natural calcium, as well as chondroitin sulfate and the like found in bone marrow. The foodstuff made in accordance with the present invention of bone and marrow, which are rich in nutrients, is added as a meat to frozen foods, side dishes, and products for special occasions. Its usage methods may be expanded to dried powders, and the pulverized product may be used as soups or seasonings.

#### Embodiment 1

Method for manufacturing a foodstuff comprised of bone and marrow from the neck and body of a turkey.

Additive (A) was formed by dissolving 1.0 kg of soy lecithin in advance in 5 l of an alkali water solution with a pH of 9, and making this uniform in a precision grinder.

Additionally, 1.0 kg of soy lecithin was dissolved in 5 l of water and made uniform by means of a precision grinder; this became Additive (B).

The defeathered body of a turkey was taken apart and the inedible parts; i.e, the head, feet, and inner organs, were removed. After the edible parts such as the meat and the like were collected, the remaining body and neck were cut to a size of 2 cm – 3 cm.

After soaking, disinfecting, and washing in a sodium hypochlorite (90 ppm) solution for approximately one hour, it was subjected to a Kioppa rough grinding machine, and a roughly ground minced product is obtained by uniformly mixing this with the aforementioned Additive (A). Grinding was carried out while keeping the precision grinding machine cold inside a freezer at a temperature of  $-15^{\circ}\text{C}$ , and the insides of the edible bone and marrow, including cartilage and muscle, and 97.6 kg of an extremely finely minced paste with no roughness at all was manufactured. After being soaked, stirred, and washed in 200 l of water, dehydration was carried out by means of a centrifugal separator. After the additive (B) was uniformly mixed, 73.2 kg of a low-fat minced paste with a water content of 71.2% and the pH adjusted to 5.7 by means of a mixed liquid of 200 cc of malic acid and 110 cc of lactic acid was manufactured. For long-term storage, this was frozen into four frozen plates of 10 kg each. The remaining minced paste was freeze-dried, and 8.2 kg of a powdered foodstuff was manufactured.

The manufacturing method may be freely selected based on the usage objective. Thus, a paste-formed raw material that has blood and fat removed and is washed, a low-fat minced raw material that is washed and has blood and fat removed, or a dried powdered material may be used. The analyzed values of the case of a low-fat minced product are listed below:

product: minced turkey

water content: 72%

proteins: 15.4%

fats: 5.2%



ash content: 7.0%

sugars: 0.2%

Comment: The fat content of the minced product before the fat was removed was 14 – 16% on average.

### Embodiment 2

Method for manufacturing a foodstuff comprised of the bone and marrow of a pig.

Additive (A): 1.0 kg of soy lecithin was dissolved in 5 l of an alkali water solution with a pH of 9, and made uniform with a precision grinder.

Additive (B): 1.0 kg of soy lecithin was dissolved in 5 l of an alkali water solution and made uniform with a precision grinder.

After slaughter and disassembly, the skeletal framework with the bones and hooves of the feet removed; i.e., 100 kg, was roughly ground to a size of 2 cm with a crusher.

After soaking, disinfecting, and washing in a sodium hypochlorite (95 ppm) solution for approximately one hour, it was subjected to a Kioppa rough grinding machine, and a roughly ground minced product uniformly mixed with Additive (A) was obtained.

Grinding was carried out while keeping the precision grinding machine cold inside a freezing chamber at a temperature of  $-15^{\circ}\text{C}$ , and with two passes through the grinder, an extremely fine paste-formed minced pork at 5 microns or less with no roughness was formed. The pH was adjusted to 5.6 by means of a mixed liquid of 200 cc of malic acid and 180 cc of lactic acid, and 107.6 kg thereof were manufactured. The analyzed values of this product are listed below:

product: minced pork

water content: 76.2%

proteins: 10.0%

fats: 10.5%

ash content: 1.3%

calcium: 231 mg %

If necessary, fat and blood may be removed in the same manner as in Embodiment 1; after Additive (B) is added, the pH may be adjusted by means of an organic acid, and a low-fat minced pork in a dried and powdered form may be formed.

### Embodiment 3

Method for manufacturing a foodstuff comprised of the bone and marrow of an eel.

Additive (A) was formed by dissolving 500 g of soy lecithin in advance in 25 l of an alkali water solution with a pH of 10, and making this uniform in a precision grinder.

Additionally, 500 g of soy lecithin was dissolved in 25 l of water and made uniform by means of a precision grinder; this became Additive (B).

The inner organs, heads, tails, and meat of eels were separated and collected, and 50 kg of the remaining bones were cut to a size of 2 cm – 3 cm. After soaking, disinfecting, and washing in a sodium hypochlorite (90 ppm) solution for approximately one hour, it was subjected to a Kioppa rough grinding machine, and a roughly ground minced product of 0.3 mm was obtained by uniformly mixing this with Additive (A). Grinding was carried out while keeping the precision grinding machine cold inside a freezing chamber at a temperature of  $-15^{\circ}\text{C}$ . The pH was adjusted to 6 by means of a

mixed liquid of 100 cc of malic acid and 50 cc of lactic acid. The Additive (B) was uniformly mixed with this, and 51.8 kg of paste-formed minced eel was manufactured.

If necessary, fat and blood may be removed in the same manner as in Embodiment 1; after Additive (B) is added, the pH may be adjusted by means of an organic acid, and a low-fat minced product in a dried and powdered form may be formed.

#### Embodiment 4

Method for manufacturing a foodstuff comprised of the bone and marrow of salmon.

Additive (A) was formed by dissolving 1.0 kg of soy lecithin in advance in 5 l of an alkali water solution with a pH of 10, and making this uniform in a precision grinder.

Additionally, 1.0 kg of soy lecithin was dissolved in 5 l of water and made uniform by means of a precision grinder; this became Additive (B).

The inner organs, heads, and tails of salmon were removed and the meat was separated and collected, and 100 kg of the remaining bones were cut to a size of 2 cm. After soaking, disinfecting, and washing in a sodium hypochlorite (90 ppm) solution for approximately 30 minutes, it was subjected to a first Kioppa rough grinding machine, and with a second Kioppa, a roughly ground minced product of 0.1 mm was obtained by uniformly mixing this with Additive (A). The first grinding was carried out while keeping the precision grinding machine cold inside a freezing chamber at a temperature of  $-15^{\circ}\text{C}$ . In this case, because the hardness of the salmon bones was high, cold water was provided along with the minced salmon to prevent an increase in the grinding heat. The product, which was ground so as to pass through a 50-mesh sieve, underwent a

second grinding and extremely fine particles of 5 microns or less were obtained. This was soaked, stirred, and washed in 200 l of cold water at a temperature of 5°C, subjected to a centrifugal grinder, dehydrated, and separated. The pH was 5.8 with a mixed liquid of 200 cc of malic acid and 200 cc of lactic acid. Additive (B) was uniformly mixed, and 103 kg of a minced salmon paste with a water content of 76% was manufactured. For long-term storage, this was frozen into five frozen plates of 10 kg each. The remaining 53 kg was freeze-dried, and 11.03 kg of a powdered foodstuff was manufactured.

Translations Branch  
United States Patent and Trademark Office  
February 27, 2003  
Steven M. Spar